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THE EFFECT OF MACROPHAGE ACCUMULATIONS ON BARE-METAL STENT NEOINTIMA IN PATIENTS WITH ACUTE CORONARY SYNDROME: EVALUATION USING OPTICAL COHERENCE TOMOGRAPHY

Poster Contributions
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Background: Little is known about the effect of macrophage accumulations (Mp) on bare-metal stent (BMS) failure.

Methods: We evaluated 60 consecutive BMS failure lesions in 60 patients 15 acute coronary syndrome [ACS] and 45 stable angina pectoris [SAP], median stent duration 11.3 [interquartile range 7.6-47.8] months) by optical coherence tomography. Neointima with Mp was defined as thin bright layer with shadowing (peak intensity >180 and attenuation rate >2, when measurements were fitted to an approximate exponential function).

Results: The mean age was 67.8 ± 9.7 years, 55 patients (91.7%) were male, and 21 (35.0%) were diabetic. Compared with SAP patients, ACS patients showed higher incidence of thin-cap fibroatheroma (TCFA)-containing neointima (53.3% versus 4.4%, p<0.0001), lesions with Mp (66.7% versus 8.9%, p<0.0001), neointimal rupture (60.0% versus 11.1%, p=0.0004), thrombus (66.7% versus 31.1%, p=0.031), and had higher admission LDL (110.3 ± 28.8 versus 89.3 ± 21.4 mg/dl, p=0.017) and higher LDL/HDL ratio (2.65 ± 0.86 versus 1.95 ± 0.65, p=0.009). Stent failure with TCFA-containing neointima (n=10) expressed higher incidence of Mp (100% versus 8.0%, p<0.0001), larger Mp angle (157.0 [range 89.5-261.8] versus 0 [0-0] °, p=0.0006), and longer Mp longitudinal length (9.5 [range 5.0-14] versus 0 [0-0] mm, p=0.0009) than non-TCFA-containing neointima (n=50). Compared with lesions without neointimal rupture (n=46), lesions with neointimal rupture (n=14) demonstrated higher incidence of Mp (78.6% versus 6.5%, p<0.0001), larger Mp angle (125.5 [range 24.0-261.8] versus 0 [0-0] °, p=0.0009), and longer Mp longitudinal length (7.5 [range 1.0-12.5] versus 0 [0-0] mm, p=0.001). Thrombotic stent failure lesions (n=24) showed more Mp (45.8% versus 8.3%, p=0.001) than non-thrombotic lesions (n=36). Fourteen stent failure patients with Mp presented later than 46 patients without Mp (p<0.0001). Using receiver-operating curve analysis, 16.7 months was the best predictor of the presence of Mp with a sensitivity of 100% and a specificity of 84.8% (area under curve =0.946, p<0.0001).

Conclusion: Mp might be associated with neoatherosclerosis and unstable features of BMS neointima.